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Electron paramagnetic resonance studies of GdMnO 3 single crystal and thin film deposited onto a LaAlO 3 substrate

Yatsyk I., Mamedov D., Fazlizhanov I., Gavrilova T., Eremina R., Andreev N., Chichkov V., Mukovskii Y., von Nidda H., Loidl A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Electronic paramagnetic resonance (EPR) spectra of a GdMnO 3 single crystal and GdMnO 3/LaAlO 3 thin film have been measured at X- and Q-band frequencies in the temperature range from 4. 2 to 300 K. It is found that the EPR spectrum of a GdMnO 3 single crystal consists of only one broad exchange-narrowed line. Unusual magnetism is observed at the interface between the GdMnO 3 thin film and LaAlO 3 substrate, where it is possible to see the fine structure of the EPR spectrum for a Gd 3+ ion. The parameters characterizing the fine structure related to the Gd 3+ ion in the GdMnO 3 film deposited onto the LaAlO 3 substrate are determined.

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